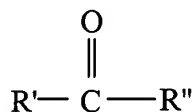


### AMENDMENTS TO THE CLAIMS:

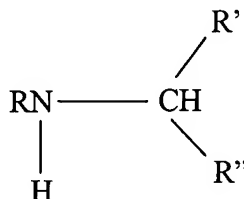
This listing of claims will replace all prior versions, and listings, of claims in the application.

#### Listing of Claims:

1. (Currently Amended) A process for producing a secondary amine product which comprises heating a mixture comprising: a) hydrogen; b) a carbonyl compound represented by:



and c) a primary amine reactant represented by the structure  $\text{R}-\text{NH}_2$  to any temperature in the range of about  $80^\circ\text{C}$  to about  $230^\circ\text{C}$  and under any pressure in the range of about 100 psig to about 3000 psig in the presence of an effective catalytic amount of a catalyst comprising metallic palladium, wherein said secondary amine product has the formula:



in which R is any alkyl, aminoalkyl, alkylaryl, or aminoalkylaryl group, whether straight-chain, branched, or cyclic, R' and R'' are each independently selected from the group consisting of: hydrogen;  $\text{C}_1\text{-C}_{20}$  alkyl, whether straight-chain, branched, or cyclic, subject to the proviso that both R' and R'' are not simultaneously hydrogen, wherein the amount of tertiary amine produced during said process is less than 3.00% by weight of the total amount of secondary amine produced, and further wherein the secondary amine product is produced in a yield of at least 97.00% by weight based on all amine products produced.

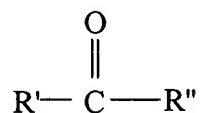
Appl. No. 10/623,293  
Amdt. dated October 27, 2005  
Reply to Office Action of July 14, 2005

2. (Original) A process according to claim 1 in which said catalyst has a surface area of at least 100 m<sup>2</sup> per gram.
3. (Original) A process according to claim 1 in which said primary amine reactant is a diamine.
4. (Original) A process according to claim 3 wherein said diamine contains two ---NH<sub>2</sub> groups.
5. (Cancelled)
6. (Original) A process according to claim 1 in which the amount of tertiary amine impurity produced is less than 2.0% by weight based on all amine products produced.
7. (Original) A process according to claim 1 wherein said catalyst comprises palladium on carbon.
8. (Original) A process according to claim 7 wherein said carbon comprises charcoal.
9. (Original) A process according to claim 1 wherein said carbonyl compound comprises a ketone selected from the group consisting of: acetone, methylethyl ketone, methylisobutyl ketone, methylisoamyl ketone, 2-butanone, 2-pentanone, 2-hexanone, and 2-ethylhexanone.
10. (Original) A process according to claim 3 in which said primary amine is isophorone diamine, said carbonyl compound is acetone, and in which the product N,N'-Diisopropylisophorone Diamine is produced in a yield of at least 97.00% by weight based on all amine products produced.

11. (Original) A process according to claim 3 in which said primary amine is isophorone diamine, said carbonyl compound is acetone, and in which amount of tertiary amine impurity produced is less than 2.0% by weight based on all amine products produced.

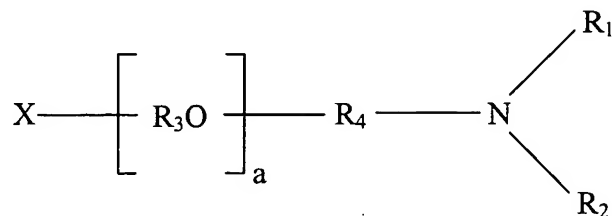
12. (Currently Amended) A process for producing a secondary amine product from a primary amine reactant, which process comprises heating a mixture that comprises the components:

- a) hydrogen;
- b) a carbonyl compound represented by the structure:

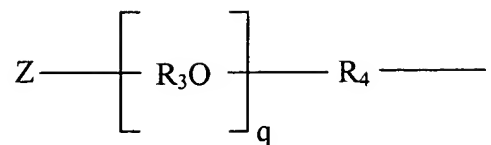


in which R' and R'' are each independently selected from the group consisting of: hydrogen; C<sub>1</sub>-C<sub>20</sub> alkyl, whether straight-chain, branched, or cyclic, subject to the proviso that both R' and R'' are not simultaneously hydrogen, and

c) an amine reactant comprising one or more alkoxyated amines having a primary amine function and described by the formula:



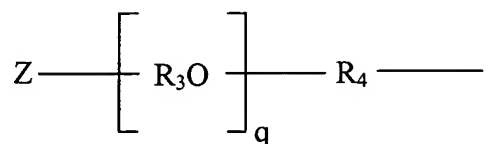
in which R<sub>1</sub> and R<sub>2</sub> are each independently selected from the group consisting of: hydrogen; an alkyl group having 1, 2, 3, 4, 5, or 6 carbon atoms, whether straight-chain or branched; or a radical of the formula:



in which R<sub>3</sub> may be an alkyl group having any number of carbon atoms selected from 1, 2, 3, 4, 5, or 6, straight-chain or branched; R<sub>4</sub> is a straight-chain or branched alkyl bridging group having 1, 2, 3, 4, 5, or 6 carbon atoms; Z is a hydroxy group or alkyl group containing 1, 2, 3, 4, 5, or 6 carbon atoms, straight-chain or branched; q is any integer between 0 and 400; and wherein X is any of:

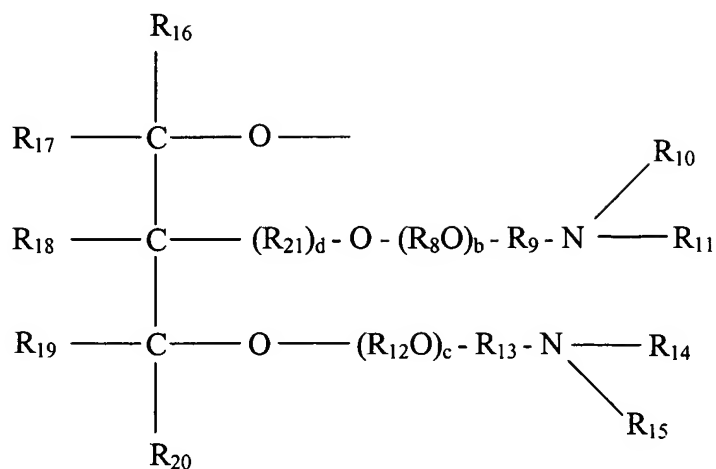
i) a hydroxy group or an alkyl group having any number of carbon atoms selected from 1, 2, 3, 4, 5, or 6; or

ii) a group  $\text{R}_6-\text{N}-\text{R}_5$  or  $\text{R}_6-\text{N}-\text{R}_7$  in which R<sub>5</sub> and R<sub>6</sub> are each independently selected from the group consisting of: hydrogen; an alkyl group having 1, 2, 3, 4, 5, or 6 carbon atoms, whether straight-chain or branched; or

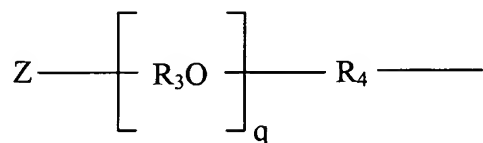


as defined above in which Z is a hydroxy group or an alkoxy group having 1, 2, 3, 4, 5, or 6 carbon atoms, and in which R<sub>7</sub> is a straight-chain or branched alkylene bridging group having 1, 2, 3, 4, 5, or 6 carbon atoms; or

iii) a moiety of the formula:



in which  $\text{R}_{10}$ ,  $\text{R}_{11}$ ,  $\text{R}_{14}$ , and  $\text{R}_{15}$  are each independently selected from the group of: hydrogen; an alkyl group having 1, 2, 3, 4, 5, or 6 carbon atoms, straight-chain or branched; the moiety



as defined above in which Z is a hydroxy or alkoxy group having 1, 2, 3, 4, 5, or 6 carbon atoms;  $\text{R}_8$  and  $\text{R}_{12}$  are each independently alkyl groups having 1, 2, 3, 4, 5, or 6 carbon atoms, straight-chain or branched;  $\text{R}_9$ ,  $\text{R}_{13}$ , and  $\text{R}_{21}$  are each independently selected from a straight-chain or branched alkyl bridging linkage having 1, 2, 3, 4, 5, or 6 carbon atoms;  $\text{R}_{16}$ ,  $\text{R}_{17}$ ,  $\text{R}_{18}$ ,  $\text{R}_{19}$ ,  $\text{R}_{20}$  are each independently selected from hydrogen or an alkyl group having 1, 2, 3, 4, 5, or 6 carbon atoms; d is 0 or 1; and a is any integer between 0 and 100, with the proviso that when X is a moiety of the formula given in iii) above, the sum of  $a+b+c$  is any number between 2 and 400, to any temperature in the range of about 80° C to about 200° C and under any pressure in the range of about 100 psig to about 3000 psig in the presence of an effective catalytic amount of a catalyst comprising metallic palladium, wherein the total amount of tertiary amine produced during said process is less than 3.00% by weight of the total amount of secondary amine produced, and further

wherein the secondary amine product is produced in a yield of at least 97.00% by weight based on all amine products produced.

13. (Original) A process according to claim 12 in which said catalyst has a surface area of at least 100 m<sup>2</sup> per gram.

14. (Original) A process according to claim 12 in which said amine reactant is a diamine.

15. (Original) A process according to claim 14 wherein said diamine contains two ---NH<sub>2</sub> groups.

16. (Cancelled).

17. (Currently Amended) A process according to claim +12 in which the amount of tertiary amine impurity produced is less than 2.0% by weight based on all amine products produced.

18. (Currently Amended) A process according to claim +12 wherein said catalyst comprises palladium on carbon.

19. (Original) A process according to claim 18 wherein said carbon comprises charcoal.

20. (Currently Amended) A process according to claim +12 wherein said carbonyl compound comprises a ketone selected from the group consisting of: acetone, methylethyl ketone, methylisobutyl ketone, methylisoamyl ketone, 2-butanone, 2-pentanone, 2-hexanone, and 2-ethylhexanone.